Session 609

Developing Desktop Applications With WebObjects

Ron Lue-Sang
WebObjects Engineer

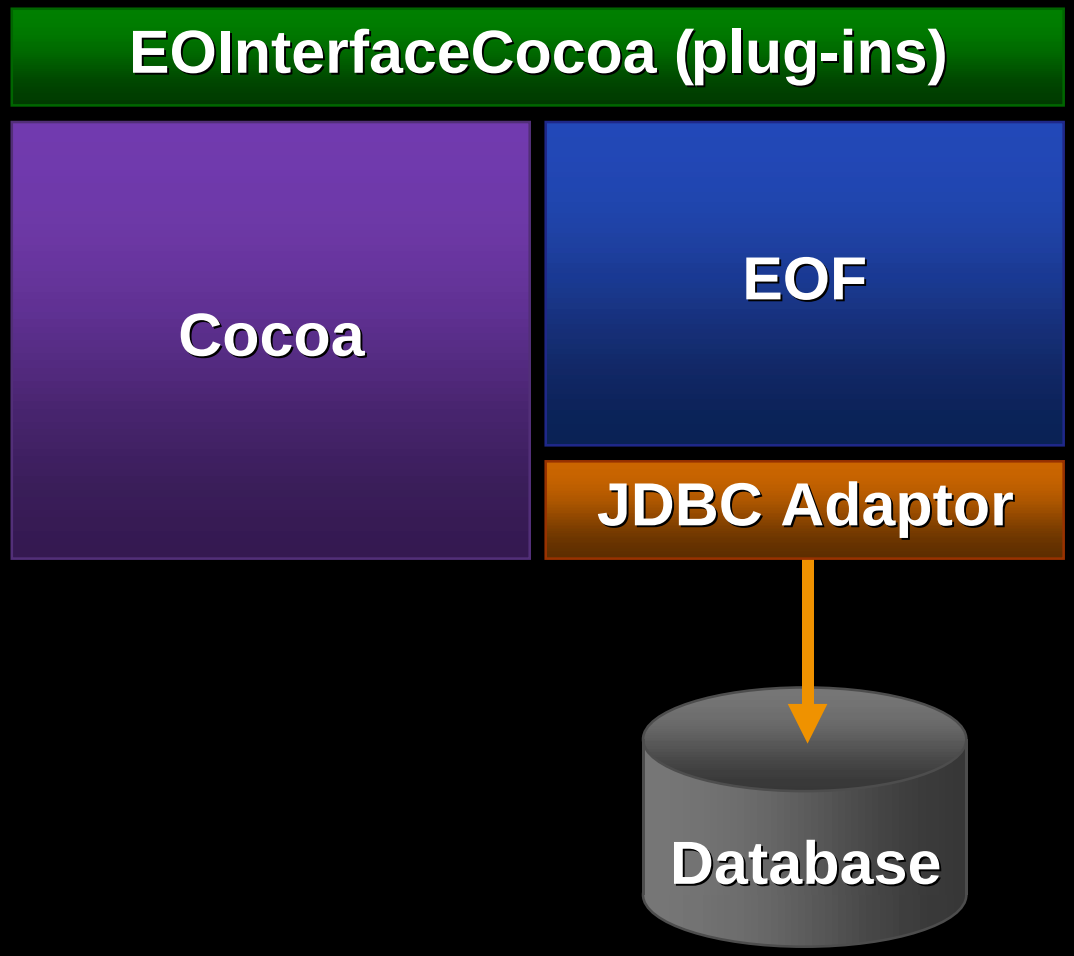
Introduction

- WebObjects gives you incredibly powerful database connectivity for desktop applications!
- Two architectures supported
  - 2-tier applications using Cocoa/EOF
  - 3-tier applications using Java Client and Direct to Java Client with JFC/Swing

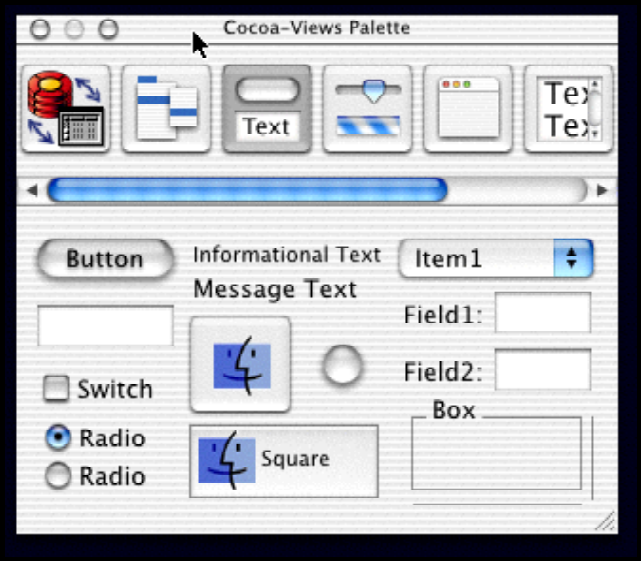
What You'll Learn

- What is the Cocoa/EOF architecture and what functionality does Cocoa/EOF provide?
- What is the Java Client architecture and what functionality does Java Client provide?

2-Tier Architecture—Cocoa/EOF



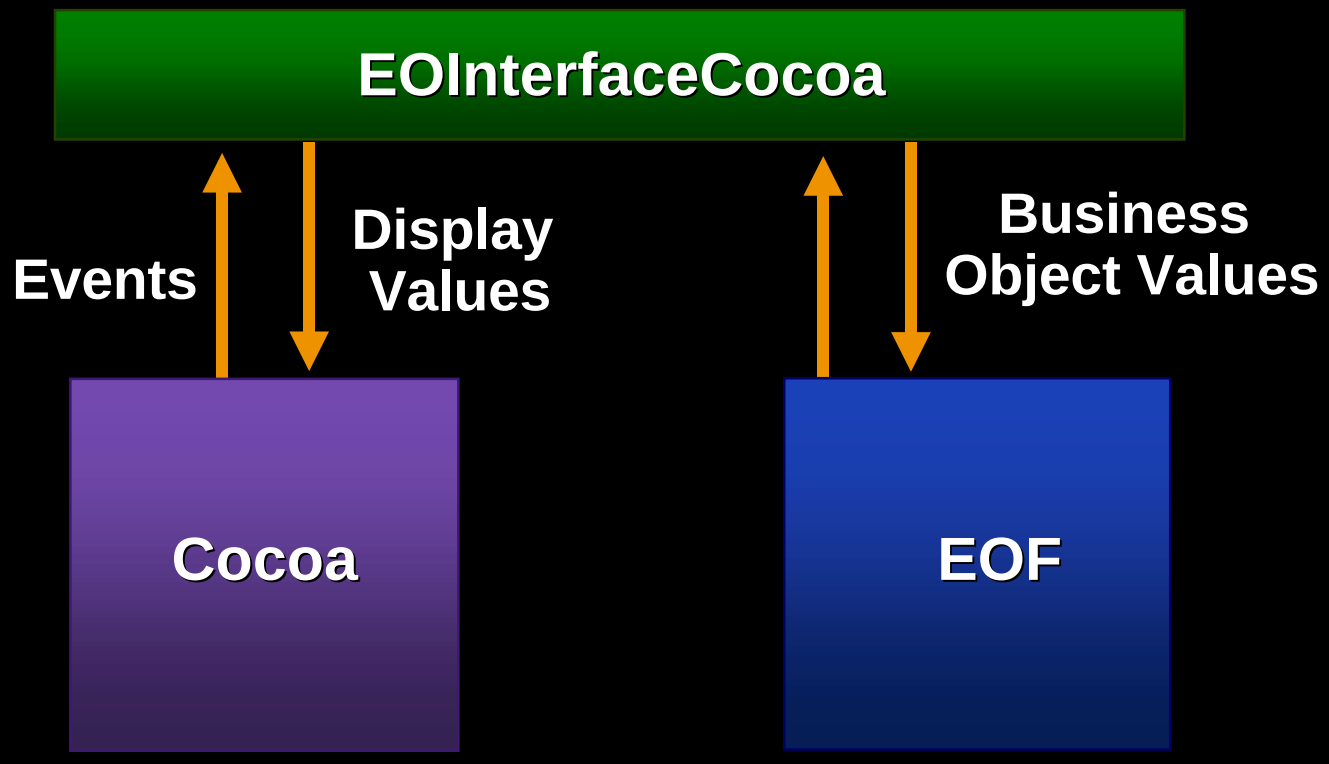
Cocoa



- Application logic
  - Cocoa widgets
  - Responder chain
  - Run loop
  - Custom views

2-Tier Architecture—Cocoa/EOF

Cocoa/EOF Data Flow



Java/Objective-C Bridge

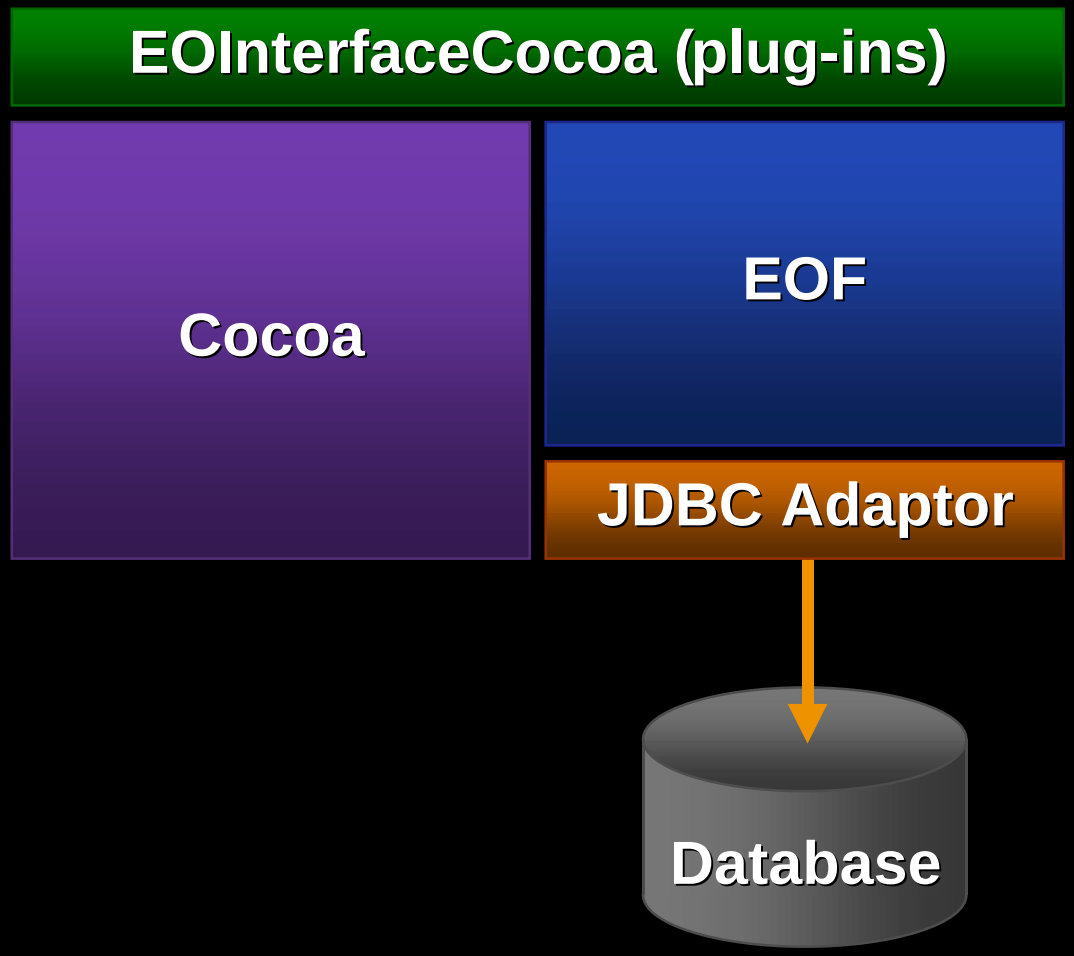
- Cocoa: Objective-C, “wrapped” in Java APIs
- EOF: Java
- Custom business logic
  - Java
  - Reusable in any WebObjects application
- Application logic, custom views
  - Choice of Java or Objective-C

Java/Objective-C Bridge

- Cocoa/EOF hardly crosses the bridge!
  - Both worlds are well separated
  - Good for stability
  - Good for performance
- Need to be aware of different memory models
  - Take care to “retain”/“release” objects
  - Use API on EOCocoaUtilities

```
public static void retainObject ( Object object );
public static void releaseObject ( Object object );
```

2-Tier Architecture—Cocoa/EOF



EOControl

- Core of EOF
  - Business logic
  - EOEditingContext
    - Business object graph container
    - Change tracking
    - Undo/redo
  - Faulting

EOAccess

- Connectivity to data sources
  - Adaptor architecture
    - JDBC (SQL)
    - JNDI, custom data sources
  - Object relational mapping
  - EOModel
    - Definition of business objects
    - Description of mapping

EOInterface

- Displaying data in user interface
- EODisplayGroup
  - Common gateway to multiple data sources
  - Coordination of user interface updates

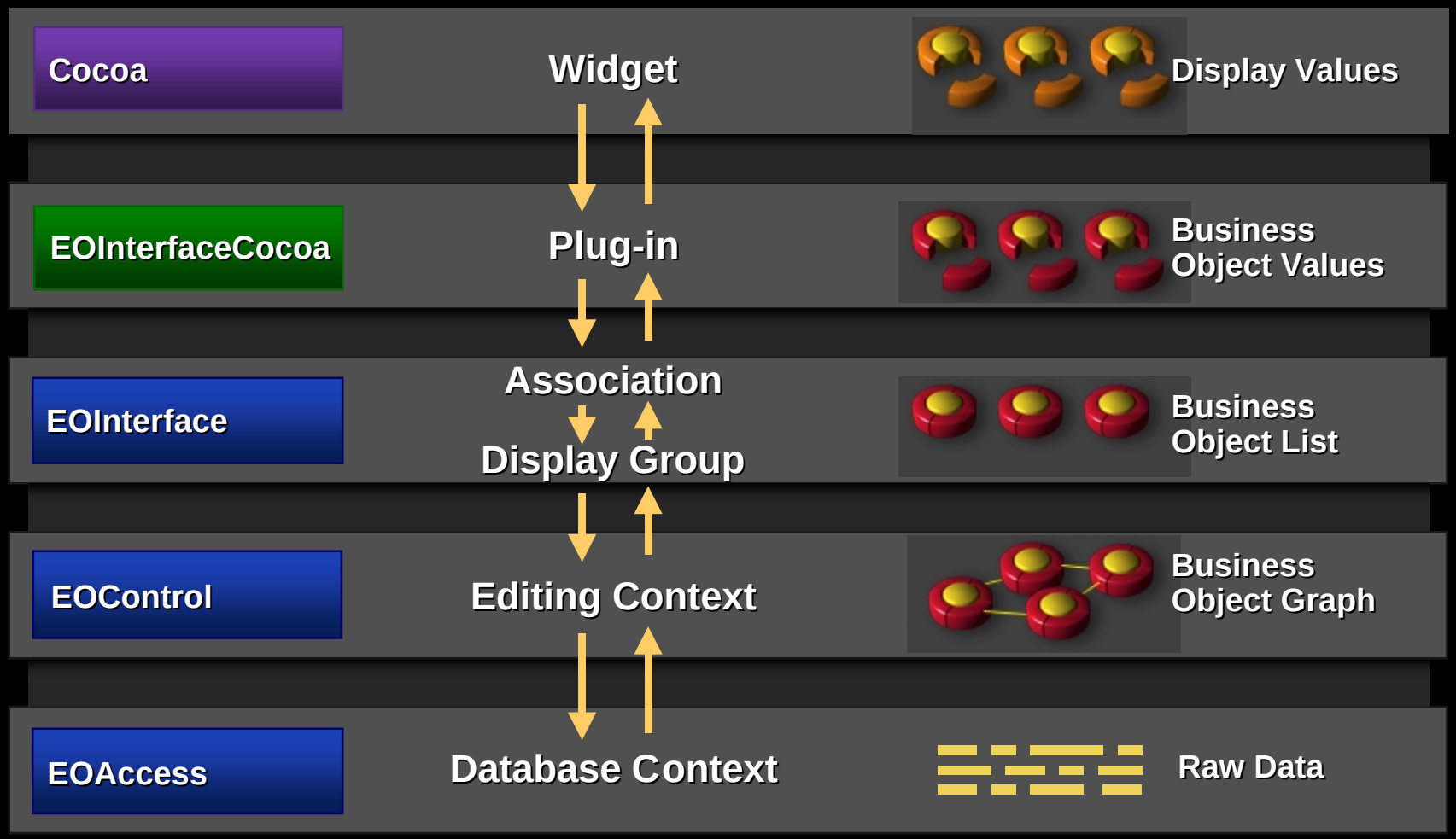
EOInterface

- EOAssociations
  - Connecting user interface elements to display groups
    - Strings, numbers, dates, images
    - Tables
  - Connecting display groups to other display groups for master/detail interfaces
  - Abstraction of widget set with help of plug-ins

EOInterfaceCocoa

- EOAssociation Plug-ins
  - Handle widget set specific tasks
    - Type morphing
    - Set/Get values in user interface
    - Event handling
  - Extendable to other widgets
    - Custom NSViews
    - Custom Delegates

Populating User Interface



Demo

Cocoa/EOF Application With Master/Detail Interface

Andreas Wendker
Manager, WebObjects Rapid Development

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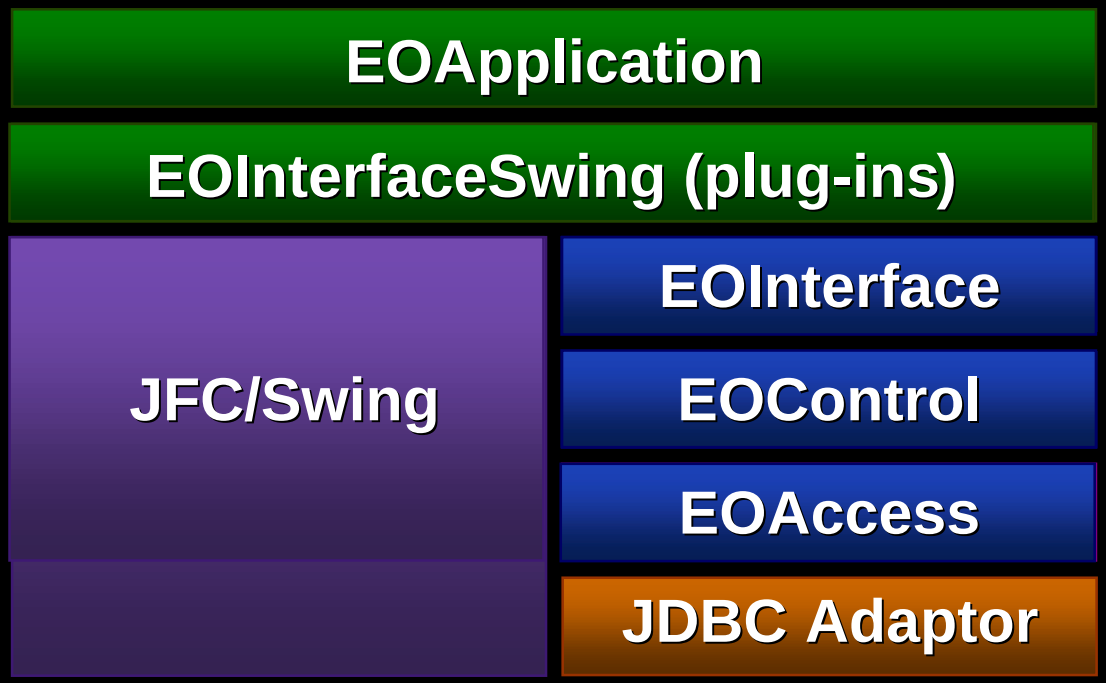
Developing Desktop Applications With WebObjects

Andreas Wendker
Manager, WebObjects Rapid Development

Java Client

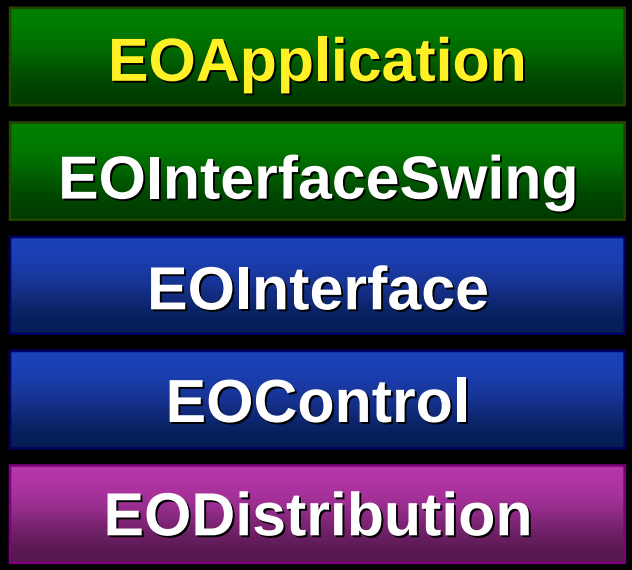
- Alternative technology to Cocoa/EOF
- Pure Java, using JFC/Swing, platform independent
- 3-tier architecture
  - Client displays user interface
  - Server accesses database
  - Database stores data
  - HTTP as communication protocol:
    Connectivity of an HTML-based application,
    but richer user interface

3-Tier Architecture—Java Client



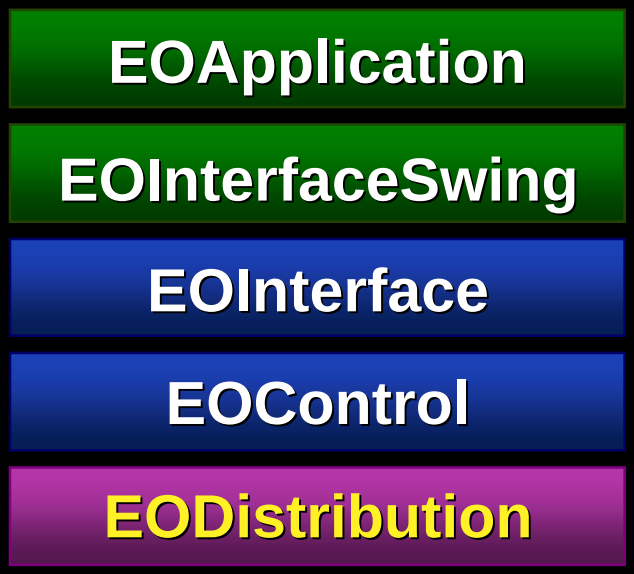
EOApplication

- Application logic
  - Start up
  - Document management
  - Menus
  - User interface layout utilities
- Loading interface files built in Interface Builder

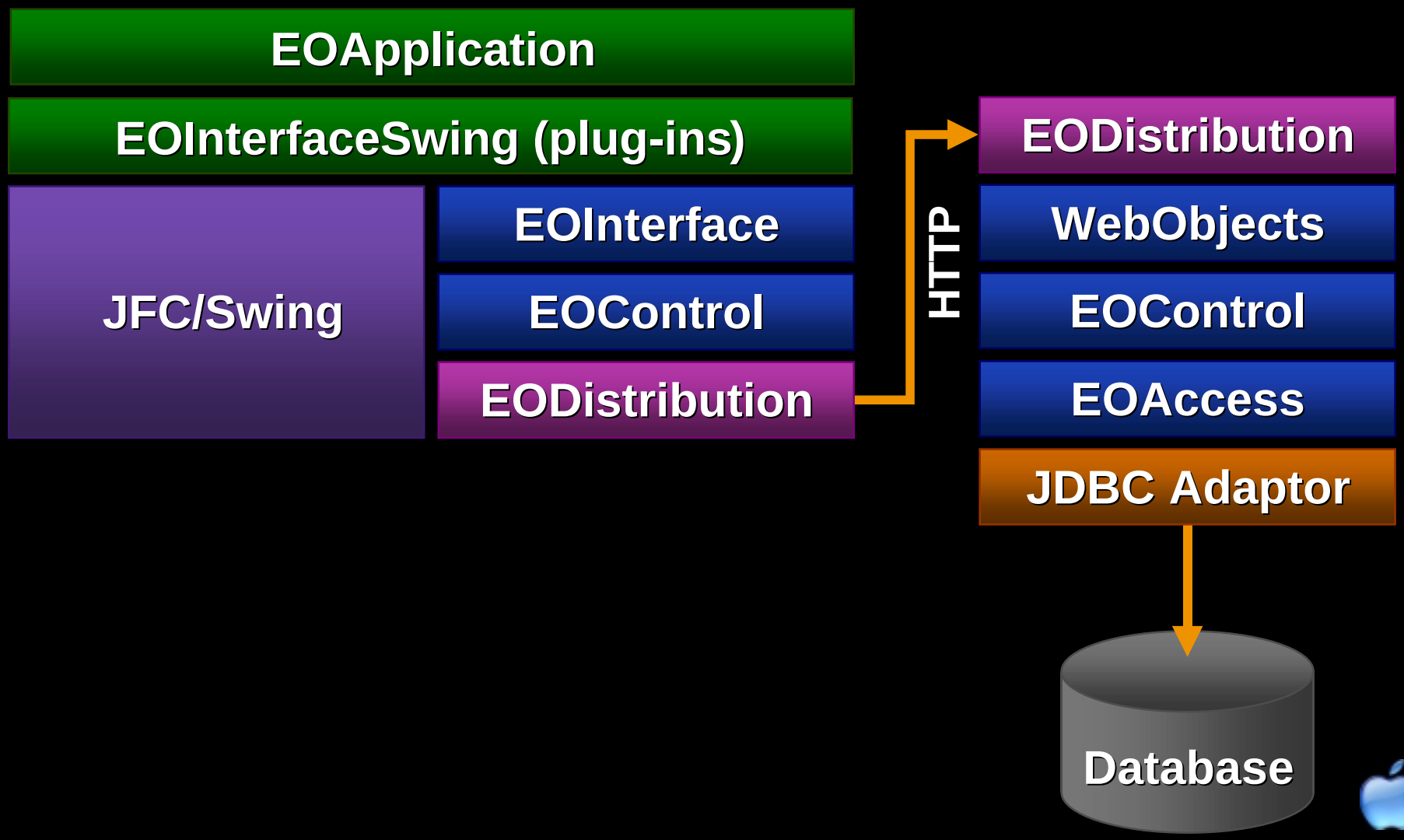


EODistribution

- Replaces EOAccess as data access layer
- Fetches business objects from server, not from database
- API for remote method invocations

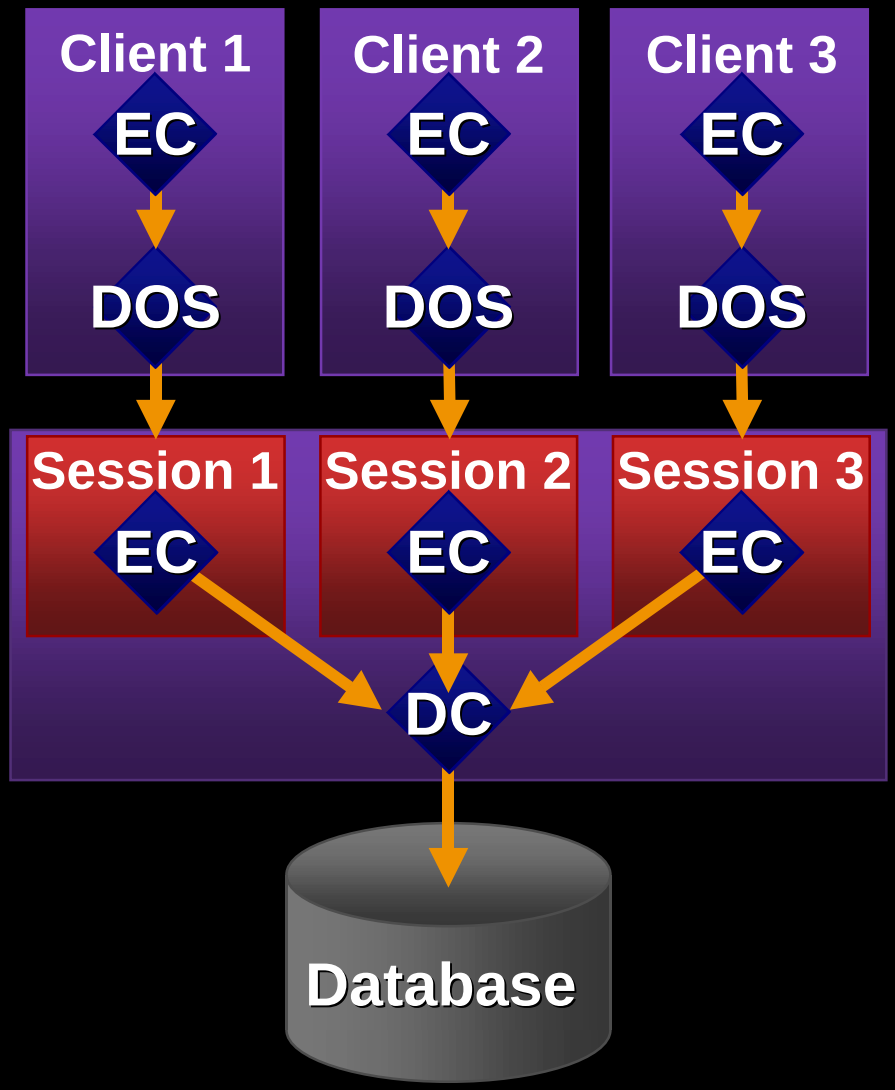


3-Tier Architecture—Java Client

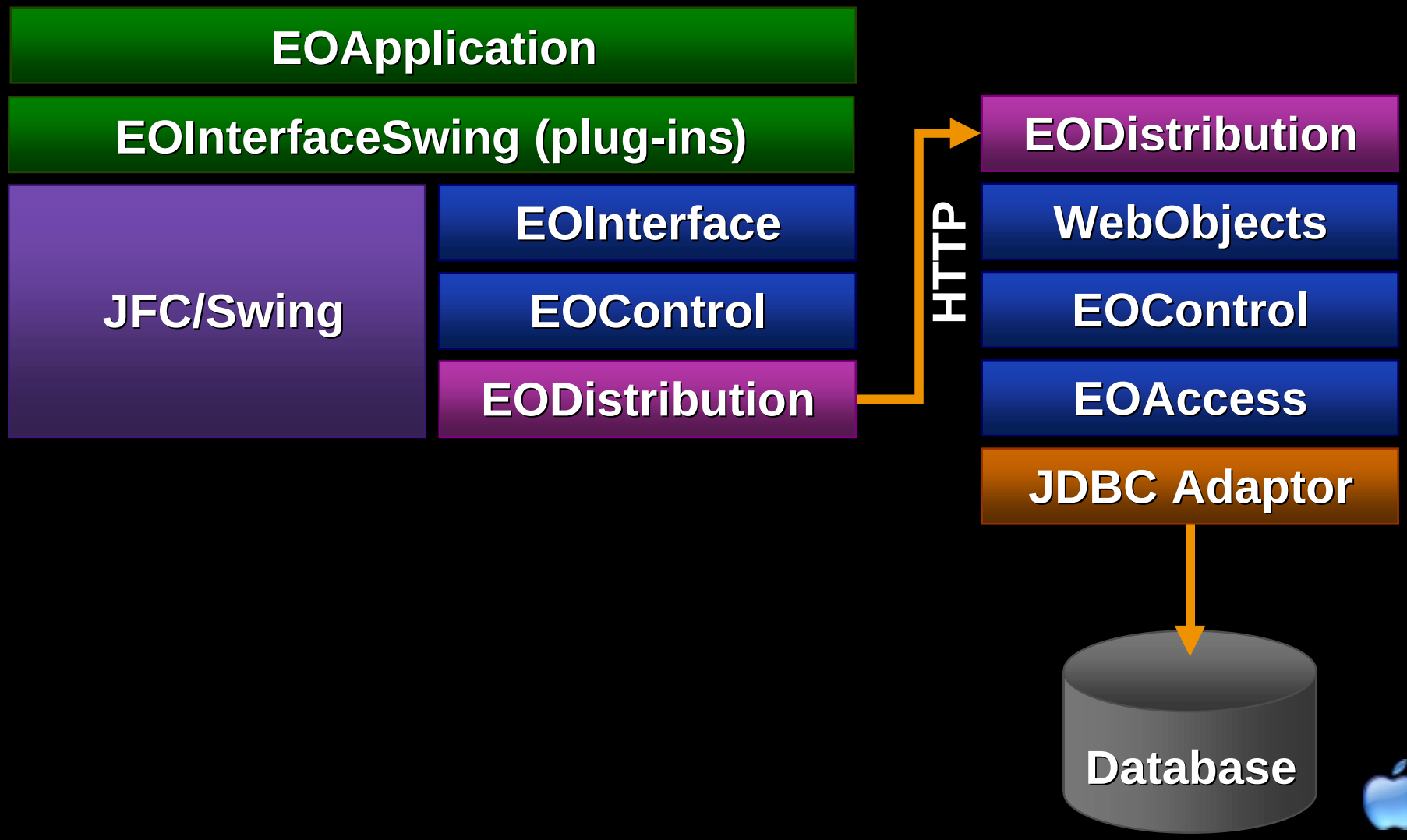


EODistribution

- Copy distribution mechanism, no client stubs
- Client behaves like a nested editing context to the session's editing context on the server



3-Tier Architecture—Java Client



Java Client

- EOControl on both client and server
  - Business logic can be identical or partitioned
  - 3-tier architecture adds additional value
    - Security
    - Performance

Deployment Options

	Application	Applet
Installation, Upgrade		●
User Experience	●	
Performance	●	
Isolation	●	
Security Restrictions	●	●
VM Parameters	●	

Demo

Java Client Application With Master/Detail Interface

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WebObjects Engineer

Direct to Java Client

- Infrastructure to make developing Java Client applications really easy
- Provides a lot of predefined application functionality
- Generates user interfaces dynamically, resulting in rich applications

Demo

Direct to Java Client Application

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WebObjects Engineer

Comparison of Technologies

	2-Tier with Cocoa/EOF	3-Tier with Java Client
Platforms	Mac OS X only	Platform independent with JDK 1.3
Mac OS X	Optimal user experience	Good user experience
Deployment	Installation necessary	Various deployment options
Administration	Like every desktop application	Server and clients, more complicated
Performance	Fine	User interface slower, server communication can be problematic
Security	Intranet only	Intranet ++

Summary

- WebObjects supports two desktop application architectures
  - 2-tier Cocoa/EOF
  - 3-tier Java Client
- WebObjects gives you incredibly powerful database connectivity for desktop applications
- Business logic code can be reused in all WebObjects architectures

WebObjects Lab

- Located downstairs in Room K
- Lab hours
  - Monday 12:00pm–6:00pm
  - Tuesday 10:30am–6:00pm
  - Wednesday 10:30am–6:00pm
  - Thursday 10:30am–6:00pm
  - Friday 10:30am–3:30pm

☑ Vote for WebObjects as Best App Server
http://developer.apple.com/webobjects

Roadmap

606 Direct to Java Client	Room A1 **Wed., 3:30pm**
614 Advanced Java Client	Room A1 **Thurs., 5:00pm**

Who to Contact

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